DOCUMENT RESUME

ED 480 076 CG 032 649

AUTHOR	Harrington, Thomas F.; Feller, Richard W.
TITLE	Facilitating Career Development: Assessment and Interpretation Practices.
PUB DATE	2003-08-00
NOTE	15p.; In: Measuring Up: Assessment Issues for Teachers, Counselors, and Administrators; see CG 032 608.
PUB TYPE	Information Analyses (070)
EDRS PRICE	EDRS Price MF01/PC01 Plus Postage.
DESCRIPTORS	Academic Achievement; *Career Counseling; *Evaluation Methods; *Measures (Individuals); *Test Interpretation
IDENTIFIERS	*Career Assessment

ABSTRACT

Recognizing the strong relationship between academic achievement and career options, this chapter reviews the major career assessments, their unique purposes, some technical considerations, and the types of scores used. Ways are suggested to enhance interpretation of career assessments using high-speed computers, Internet storage capacity and accessibility, and the ability to provide vicarious experiences through multimedia. (Contains 20 references.) (Author)

Reproductions supplied by EDRS are the best that can be made
from the original document.

ED 480 076

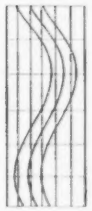
Facilitating Career Development: Assessment and Interpretation Practices

By
Thomas F. Harrington
Richard W. Feller

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☐ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

CG032649

BEST COPY AVAILABLE



Chapter 41
Facilitating Career Development
Assessment and Interpretation Practices

Thomas F. Harrington & Richard W. Feller

As academic assessment drives education reform, the National Commission on the High School Senior Year (2001) has advocated making K–12 and postsecondary curriculum and assessment seamless, raising achievement for all students, and providing rigorous curriculum alternatives. Career assessments play a key role in shaping the career decisions of students and stimulating a seamless transition for the 63 percent of high school graduates who currently continue on to postsecondary education (Jamieson, Curry, & Martinez, 2001). As Herr (2001) suggests, "Assessment, including career assessment, is being expected to perform roles and functions that are unprecedented in its history" (p. 15). Beyond trained school counselors, few educators learn about the opportunities provided through career assessment, however. Recognizing the strong relationship between academic achievement and career options, we review in this chapter the major career assessments, their unique purposes, some technical considerations, and the types of scores used. We suggest ways to enhance interpretation of career assessments using high-speed computers, Internet storage capacity and accessibility, and the ability to provide vicarious experiences through multimedia.

Current career development programs succeed to the degree that they align with an institution's educational mission. Strong programs are accountable for competency attainment in self-knowledge, career and educational exploration, career planning, and self-advocacy. Career assessments are heavily used as specific interventions and as tools to evaluate program outcomes. In addition, cognitive measures of abilities, aptitudes, and achievements provide important information useful in course and program selection. Still, the most frequently used tool for career planning and counseling remains the interest inventory.

Theory as Guide

A Counselor's Guide to Career Assessment Instruments, fourth edition (Kapes & Whitfield, 2001) presents the most recent professional reviews of 56 major career development instruments. Many of the interest inventories covered by the *Counselor's Guide* are based on the Holland model of career development, the most researched theory of career choice (Holland, 1997). There are several advantages to basing an interest inventory on a theoretical construct: It offers the user confidence that he or she is following an appropriate model in working with a client; concepts have been researched; and it broadens the use of interest inventory results because they can be integrated with other concepts covered by the theory.

The Holland model describes people and environments; that is, jobs or academic concentrations of study, with a set of six names: Realistic, Investigative, Artistic, Social, Enterprising, and Conventional. The RIASEC model (an acronym derived from the first letters of the six names), assesses the personality types of each individual and matches the person with corresponding environments requiring similar personality characteristics. Thus, many interest inventories assess an individual on six scales. The first sentence of the definition covers interest, whereas the second sentence describes the associated personality descriptions:

Realistic people enjoy physical activities that involve working and building with their hands, with machinery and mechanical tools, and with plants and animals. They like to see concrete results from their involvement and perceive themselves as physically strong.

Investigative people like science, mathematics, and computers. They tend to enjoy studying and mental activities that involve ideas, thinking, and problem solving.

Artistic people involve themselves in self-expressive activities such as music, dance, acting, design, writing, and entertaining. They perceive themselves as creative, independent, and not needing to follow prescribed rules.

Social people enjoy helping, teaching, and providing service to others. Typically, they are good communicators, have strong verbal skills, and can relate well with others and understand how others feel.

Enterprising people enjoy business activities that involve leading, decision making, persuading, selling, and making money. Many are outgoing, comfortable in dealing with people, and willing to accept the responsibility of making choices that affect others.

Conventional people like structure, are skilled in the use of words and numbers, and frequently are involved in activities such as performing office operations. They are comfortable with following procedures and rules; they accept carrying out other people's directions and policies, and value financial success and status.

Interest inventory results generally are interpreted by matching a person's two or three highest RIASEC interest scale scores with jobs or educational programs that involve the same two or three domains.

For example, if a person's highest interest scores were SIA (Social-Investigative-Artistic), clinical psychology or nursing would be suggested as possible jobs or college majors. Why? Because research has shown that employed clinical psychologists describe themselves as people oriented (social), as working with medically and mentally diagnosed conditions (investigative), and as needing to communicate well to deal with their clients' unique problems (artistic). Employed nurses also describe themselves foremost as skilled in working with people (social) within a medical setting (investigative). They need to be good communicators as they deal with diverse populations and a variety of unique procedures (artistic). Their activities, however, may involve more social and investigative than artistic activities. A good reference to assist in matching people with jobs is the *Dictionary of Holland Occupational Codes,* 3rd ed. (Gottfredson & Holland, 1996).

A Counselor's Guide to Career Assessment Instruments lists these common inventories as being based on the Holland model and having acceptable reliability and validity: the Self-Directed Search (SDS), the Harrington-O'Shea Career Decision-Making System (CDM), the Strong Interest Inventory (SII), the Interest-Finder, and the Career Assessment Inventory (CAI). Both the SII and CAI also use an additional empirical methodology to differentiate the interests of a relatively small number of professional and technical workers, as described later.

Interest Inventory Scale Development

All test development begins with forming an item (question) pool. The recently developed O*NET Interest Profiler (U.S. Department of

Labor, 2000a) is used here to illustrate its developmental process. The authors began by examining older U.S. Department of Labor instruments, which resulted in identifying 532 items that cover the six Holland interest areas. An additional 272 new items were written. Only 500 of the total items, however, met the criterion of a grade 8 reading level, were not outdated, did not have sexist content, and survived statistical analysis after the initial tryout. These items were readministered to 1,123 high school and college students and adults. The final Interest Profiler comprised 180 items based on results of correlations of an item with its proper theoretical scale, gender and race or ethnic comparable endorsement rates, maximum training level and occupational representation, and work content area assignments.

Technical results for this new interest inventory revealed a low percentage of scoring errors in counting scores and a minimal number of people who identified an inaccurate top interest area due to a scoring error. The internal consistency reliabilities ranged from .93 to .96, which are very high, meaning all items in a scale measured the same construct (e.g., Social). Test-retest reliabilities ranged from .81 to .92, meaning people who retook the instrument after a short time received the same results as the first time they took the instrument. However, in what many perceive as the most important criterion for using any test—validity—the O*NET Interest Profiler had difficulties. According to its technical manual, the instrument fails to correspond with the Holland theoretical model upon which it was built, namely "The correlations for the O*NET Interest Profiler suggest a problematic Enterprising scale, because this scale correlates too highly with the Artistic scale and not highly enough with the Social scale . . . comparison to another RIASEC instrument may lead to different conclusions" (U.S. Department of Labor, 2000b, p. 43).

A careful reader might also detect two major concerns of some Interest Profiler users. The instrument was not field tested with middle school children and the instrument's grade 8 reading level can place many users at risk because many high school students may not understand its vocabulary or comprehend the questions or interpretations. Thus, this instrument's value will need to be evaluated over time, especially regarding its use with some school populations.

Types of Scores Provided

Interest inventories use three types of scores to report results: raw scores, percentile scores, and standard scores. Percentile and

standard scores are based on comparing a person's results with a norm group whose norm sample is defined in the technical manual for the inventory. To be meaningful to an individual, the results should be derived from a norm group that is similar to the person being assessed.

Raw scores typically are a simple tabulation of a group of items on a scale labeled "like = 1" and "dislike = 0," or perhaps "like = 2," "uncertain = 1," and "dislike = 0." The raw score totals reflect the person's ranking of interests; for example, Conventional 32, Social 25, and Investigative 18. This set of the three highest scores out of the six scales results in a Holland code of CSI, which leads to occupations that involve CSI interests and personality types. Based on interests and personality type, this person might be a local certified public accountant who must follow established tax laws and accounting procedures, be an understanding service provider, and solve financial problems through mathematical calculations. A person with these personality characteristics might prefer structure, enjoy social interactions, and like the mental challenge of problem solving.

Some inventory administrators prefer instruments that use percentiles (such as the Kuder General Interest Survey, Form E, and the Career Occupational Preference System; COPS) because there is a mystique to numbers, and interpretation appears easy. The interpretation that a person's business interests rank at the 85th percentile would mean that they are higher than those of 85 percent of the people who took the inventory, clearly indicating high business interests. Herein lies a problem: Many interest inventory norm groups are not that large, are not based on representatively diverse populations, or are not national in scope. Instruments using percentiles often do not rely on Holland codes for interpretation, but rather use a relatively small number of homogeneous occupations presented as a cluster of careers.

Interest inventories using standard scores frequently rely on a graphic means to report their scores. The SII, CAI, and Campbell Interest and Skill Survey are inventories that use this methodology. Whereas the previous two score types are typically used with groupings of occupations, standard scores are employed with inventories answering the question, How do my interests compare with those employed in a specific occupation, such as speech-language pathologist? Each occupation has a unique scoring key that contains only items that statistically differentiate one occupation from a composite of other occupations.

Standard scores have the same statistical properties, which allow the reporting of one's own results in comparison with those of people

employed in a variety of occupations. Most interpretations rely on scores as visual indicators of the degree of one's similarity or dissimilarity to those people employed in an occupation. The presumption is that if one has the same likes and dislikes as those working in an occupation, there is a high probability one will find satisfaction in that occupation.

Beyond Interests

Cognitive assessment also plays an important role in career development. Once individuals identify a preferred program or career area for future study, they next need to explore the specific abilities and levels of the abilities needed for good performance in that area. Therefore, in this section we examine the unique contributions of three types of cognitive measures: ability, aptitude, and achievement tests. On a continuum of generality to specificity, abilities cover the broadest orientation of basic cognitive skills that affect a person's performance in a wide variety of activities. The content of aptitude tests overlaps somewhat with achievement tests; however, aptitude tests have traditionally served to predict future performance in a task. On this continuum, then, achievement tests measure the most narrowly defined attainment of a technical skill or knowledge of factual information. Course grades are another form of achievement measure because they are typically based on a variety of evaluations resulting in a teacher-assigned grade indicating the attainment of defined competencies.

Assessment of Abilities

For more than 25 years, Harrington and O'Shea (2000) have been advocates of self-reporting one's best abilities. These authors have located in the professional and research literature 14 major work-related abilities. They developed an assessment methodology of identifying a person's strongest abilities that has validity demonstrated through research studies. The use of self-reported ability methodology has been widely adopted by career development professionals. In 1996 Harrington and Harrington developed a newer methodology of self-reporting in the Ability Explorer (AE). They combined the self-ratings on 10 micro skills or abilities to identify a total score on a macro ability, which was then compared to one of three national norm groups—middle school students, high school and college students and adults—to obtain percentile scores. The 14 AE macro abilities are artistic, clerical, interpersonal, language, leadership, manual, musical/drama, numerical, organizational, persuasive, scientific, social, spatial, and technical/

mechanical.

These authors advocate the use of self-reports because of their belief in assessing all a person's abilities, given that for some abilities there are no tests. The AE also recognizes the gap that often exists between course grades and a person's own beliefs about his or her performance level in an ability area. Employers have often stated that interpersonal, leadership, organizational, and persuasive abilities are very important in hiring employees. Aptitude tests do not measure these abilities.

Beyond identifying a person's best abilities, a unique feature of the AE is that it provides information on the individual's level of ability development. In fact, the interpretive materials provide information as to how to develop each ability area further. Additionally, the comparison of self-reported abilities with related course performance provides self-efficacy information, which is relevant to one's self-concept. There is high value in comparing one's self-reported ability ratings with occupational information and institutional catalogs that include the desired abilities for success in specific areas.

Aptitudes

The most widely used multiple-aptitude test battery, the Armed Services Vocational Aptitude Battery (ASVAB; Defense Manpower Data Center, 1992), helps a person to identify his or her different abilities. Trained test administrators from the federal government administer the ASVAB in schools at no cost. The test takes about three hours, but a shorter version will soon be available.

Generally offered once a year in high schools, the ASVAB can be completed by students in grades 10, 11, and 12 and in postsecondary education for career planning purposes; 10th graders cannot use their scores for enlistment in the active military, military reserve, or national guard, whereas high school juniors, seniors, and postsecondary students can do so. The ASVAB provides information on a person's learning potential that is useful for predicting performance in school courses. The military services use ASVAB scores to help them determine potential recruits' qualifications for enlistment and to place them in occupational specialties.

The ASVAB is not just for individuals thinking about military careers, however. The results provide information about any student's readiness for advanced academic education. Score results contained in *Exploring Careers: The ASVAB Workbook* (U.S. Department of Defense, 2002) enable a person to match his or her interests, abilities, and personal

preferences with more than 200 civilian and military occupations. The purpose is to allow a person to see what career options are most suitable.

The ASVAB norms are a nationally representative sample of men and women, ages 16 to 23, who are attending high school or two-year postsecondary schools. Students receive percentile scores based on their performance as compared to students of the same grade and same sex and of the same grade and opposite sex. The ASVAB subtests are Word Knowledge, Paragraph Comprehension, Arithmetic Reasoning, Mathematics Knowledge, General Science, Auto & Shop Information, Mechanical Comprehension, Electronics Information, Numerical Operations, and Coding Speed. These ten subtests yield three composite scores: Verbal Ability, Math Ability, and Academic Ability.

Reviewers have highlighted as a strength of the ASVAB its use in prediction for more than 50 military training courses with validity coefficients ranging from .36 to .77, with a median of .60. Recent studies show that corrected correlations between ASVAB scores and military job performance range from a low of .23 to a high of .73. Its average predictive validity for courses in high schools and two-year colleges is about .40. ASVAB results are also correlated to success in nonmilitary occupations.

Achievement Tests

Course grades answer two questions: Does an individual have knowledge in a specific academic or technical knowledge area? At what level of proficiency or competency? Achievement tests are another measure of competence. Three types of achievement tests exist: reading tests, statewide assessments of basic skills, and those administered by the College Entrance Examination Board Advanced Placement Program to determine whether a student will receive college credit in a subject taken at the local high school. Each type of test provides valuable information.

Local school districts annually or at specified time periods administer reading tests to all students in order to monitor their development. Poor readers are typically identified as needing additional assistance in this skill area. Minimally these tests provide scores on vocabulary knowledge and reading comprehension, and a total score to determine reading level. Reading level is a critical skill for all other subject areas.

Increasingly states also employ high-stakes testing, which demands that a student attain a preset minimum score on reading/language and mathematics in order to graduate with a high school

diploma. Students take the exam several times during their school life (e.g., in grades 4, 8, and 10), receiving score results typically designated as "needs improvement," "proficient," or "above proficient." This information can indicate how realistic a student's vocational goals may be and serve as feedback for developing a plan beyond a high school education.

Advanced placement tests can be viewed as end-of-course exams, frequently taken in the senior year of high school and administered by a neutral third party, the College Board. Individual colleges and universities determine what level of score they accept in each subject area to grant college credit at their institution. Students and their college advisors use this information to plan a program of studies.

In summary, assessment information is used in a self-discovery and planning process. The first goal is to answer the question, Who am I? Test takers accomplish this by identifying activities that they like and dislike, which generates specific terms that uniquely describe them in personality terms. Toward the end of middle school and during high school, another set of educational goals emerges: career exploration and preparation. Occupational information provides students additional feedback by describing the skills and proficiencies inherent in certain occupations. This information offers students a rationale for selecting and planning their educational programs. Feedback they receive in their courses helps answer questions: Do I really have an interest in this area? and Am I good in performing these activities?

Interpretation Enhancements

The value of a good career assessment instrument is diminished by the absence of an interpretation, whereas a good interpretation can compensate for an average assessment. Interpretation can lead to misunderstanding the results, excite one to explore, leave one feeling beaten, or offer affirmation or confrontation. Done well, it helps identify what one should do next to meet one's goals.

Although career facilitators are intrigued by the potential of technology, some fear that it may replace the human dimension so valued in the counselor-client relationship. The computer, the Internet, and video, now common in most educational settings, will not replace the face-to-face human contact needed within career development, but they can enhance interpretation. Wall (2000) warns that "with technology-delivered assessments, meaningful human contact and intervention to assist with test score interpretation and guidance may be lacking or

unavailable. Without a skilled educator or counselor, it may be difficult for a test taker to sort out his or her results and use them in a context of other experiences." (p. 243). Although Internet-based assessments are predominately self-help interventions and cannot ensure enhanced interpretation, most personal computer–based career assessments are designed to include interpretation by a practitioner (Sampson, Lumsden, & Carr 2001). Websites such as http://www.agsnet.com/cdmcareerzone, http://www.thefutureschannel.com, and http://online.onetcenter.org are only three of many sites available to complement a practitioner's interpretation.

DISCOVER, SIGI, and Choices are three highly successful and popular computer-assisted career guidance systems (CAGS) that incorporate assessment modules. Sampson (2000) suggests that test administration, test scoring, and score profile generation complement narrative interpretative report generation and multimedia-based generalized test interpretation as key elements of computer-based assessment. With extensive databases and proper counseling techniques, an exceptional interpretation is possible through the use of a CAGS.

Although video usage in career development has received little attention, Feller (1994) and Feller and Honaker (1997) have conducted counselor evaluations of career development videos using a nine-item quality rating system and recommendations regarding the video's potential of increasing the intended viewer's achievement of the 12 National Career Development Competencies (NOICC, 1989). *The Harrington-O'Shea Career Decision Making System (CDM) Career Video Series: Tour of Your Tomorrow* (Feller & Vasos, 2000) introduces viewers to enthusiastic and authentic workers engaged in real-world experiences corresponding to the CDM interest areas. The overview videotape explains how viewing six tapes related to individual scores can enhance information within the CDM Interpretative Folder, expand career and learning options, provide vicarious experiences for clients, document elements of the "new workplace," and provide nontraditional role models. As Harrington (1997) reports, "The video gives greater meaning to the terms that clients experience on their CDM-R profiles" (p. 220).

Parents must be alerted to a school district's goals for career development and to how and when program objectives are being implemented. Parents and teachers should encourage students to search out additional information about various opportunities and do a reality test of what they have learned from their initial assessments and interpretations. Knowing and accepting that students can change during

this development period is an essential principle to complement the use of any career assessment.

Summary

Fortunately, many assessment tools are available to facilitate career development. Whereas interest surveys form the backbone of most programs, feedback gained from ability, aptitude, and achievement assessments is critical. Continued development of enhancements for interpretation will lead to more efficient and effective programs. Improving the facilitation of career development requires maintaining psychometric rigor within all career assessments, maximizing computer speed within CAGS, using the Internet's capacity and reach, and stimulating the vicarious learning possible through video technology. As practitioner interpretation of assessments further integrates these enhancements, students can experience greater academic achievement and gain career development competencies they need to prepare them for a lifetime of career transitions.

References

Defense Manpower Data Center. (1992). *Counselor manual for the Armed Services Vocational Aptitude Battery Forms 18/19.* Washington, DC: Department of Defense.

Feller, R. W. (1994). *650 career videos: Ratings, reviews and descriptions.* Ft. Collins, CO: Colorado State University.

Feller, R. W., & Honaker, S. L. (1997). *Career video reviews 1997: A consumer's guide to career videos.* Ft. Collins, CO: Colorado State University.

Feller, R. W., & Vasos, E. (2000). *The Harrington-O'Shea Career Decision Making System (CDM) career video series: Tour of your tomorrow.* Fort Collins, CO: Valer Productions.

Gottfredson, G. D., & Holland, J. L. (1996). *Dictionary of Holland occupational codes* (3rd ed.). Odessa, FL: Psychological Assessment Resources.

Harrington, T. F. (1997). *Handbook of career planning for students with special needs*. Austin, TX: Pro-Ed.

Harrington, T. F., & Harrington, J. (1996). *Ability Explorer*. Itasca, IL: Riverside Publishing.

Harrington, T. F., & O'Shea, A. J. (2000). *The Harrington-O'Shea career decision making system revised* (CDM-R) *manual*. Circle Pines, MN: American Guidance Service.

Herr, E. L. (2001). Trends and issues in career assessment. In J. Kapes and E. Whitfield (Eds.), *A counselor's guide to career assessment instruments*. Columbus, OH: NCDA.

Holland, J. L. (1997). *Making vocational choices: A theory of vocational personalities and work environments*. Odessa, FL: Psychological Assessment Resources.

Jamieson, A., Curry, A., & Martinez, G. (2001). School enrollment in the United States—Social and economic characteristics of students. Washington, DC: U.S. Census Bureau.

Kapes, J. T., & Whitfield, E. A. (2001). *A counselor's guide to career assessment instruments* (4th ed.). Columbus, OH: NCDA.

National Commission on the High School Senior Year. (2001). *Raising our sights: No high school senior left behind*. Princeton, NJ: Woodrow Wilson National Fellowship Foundation.

NOICC. (1989). *The national career development guidelines*. Washington, DC: Author.

Sampson, J. P. (2000). Using the Internet to enhance testing in counseling. *Journal of Counseling and Development, 78*, 348–356.

Sampson, J. P., Lumsden, J. A., & Carr, D. L. (2001). Computer-assisted career assessment. In J. Kapes and E. Whitfield (Eds.), *A counselor's guide to career assessment instruments*. Columbus, OH: NCDA.

U.S. Department of Defense. (2002). *Exploring careers: The ASVAB workbook*. Washington, DC: Author.

U.S. Department of Labor. (2000a). *O*Net Interest Profiler*. Washington, DC: Author.

U.S. Department of Labor. (2000b). *O*Net user's guide*. Washington, DC: Author.

Wall, J. E. (2000). Technology-delivered assessment: Power, problems, and promise. In J. Bloom and G. R. Walz (Eds.), *Cybercounseling and cyberlearning: Strategies and resources for the millennium*. Alexandria, VA: American Counseling Association.

U.S. Department of Education
Office of Educational Research and Improvement (OERI)
National Library of Education (NLE)
Educational Resources Information Center (ERIC)

NOTICE

Reproduction Basis

[ ] This document is covered by a signed "Reproduction Release (Blanket)" form (on file within the ERIC system), encompassing all or classes of documents from its source organization and, therefore, does not require a "Specific Document" Release form.

[X] This document is Federally-funded, or carries its own permission to reproduce, or is otherwise in the public domain and, therefore, may be reproduced by ERIC without a signed Reproduction Release form (either "Specific Document" or "Blanket").